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AUTHOR Wilcocks, Julie; Walker, Clare
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ABSTRACT

This paper discusses the development of information technology (IT) literacy among library staff at the University of the Witwatersrand (South Africa). The first section describes the networked environment in South Africa. The second section summarizes the IT background of library staff and perceptions of IT literacy among staff. The third section addresses IT training, including prerequisites for successful automation training and motivating staff. The fourth section covers IT literacy, including where knowledge is needed, areas of IT literacy required in the library, and gaps perceived in library IT literacy. The fifth section describes facilities for raising IT literacy levels, including external training (workshops, symposia, and conferences), the university's Computer Network Services department, the library's Education & Training department, the library's Computer Services department, and the ASK-US in-house listserv. The sixth section outlines specific approaches to improving IT literacy levels. The conclusion summarizes several points and strategies related to IT literacy and training. (MES)

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DEVELOPING IT LITERACY LEVELS AMONG LIBRARY STAFF IN A NETWORKED ENVIRONMENT, AT THE UNIVERSITY OF THE WITWATERSRAND (WITS), JOHANNESBURG, SOUTH AFRICA

Julie Wilcocks and Clare Walker
UNIVERSITY OF THE WITWATERSRAND (WITS),
JOHANNESBURG, SOUTH AFRICA

Introduction

IT literacy enables library staff to work efficiently in a wired networked environment, to provide user friendly service to a university community. Human factors in most IT environments may upset continuous workflow; some of these in the Wits University environment will be examined together with possible solutions. As well as addressing disruptive technological problems, the paper will show how the use of these networks, specifically the software, is a major factor affecting the level of service offered by Library staff. The three-way interaction of the networked environment, the library staff and the IT literacy levels of the staff will highlight the critical importance of maintaining high quality IT literacy training.

---> NETWORKED ENVIRONMENT

South African "wired" environment:
The South African environment is predominantly wired in nodes around the major centres throughout the country with the tertiary (i.e. higher) educational institutions linked through the University Network (Uninet). The underlying IP service is provided by the South African Telkom using modern ATM technology. Routing features work with SDN (Service Digital Network), Uninet and Telkom. There is still relatively small bandwidth in South Africa and often node problems, making Internet and email access slow at times and mediocre in efficiency.

Library staff in tertiary institutions are encouraged to use email, the Internet, integrated library systems and applications such as MSOffice. All Wits University Library staff have email and Internet access, and the Library has its own Web site, so a substantial degree of electronic communication and information retrieval operates in what is a physically decentralized Library and University system.

In South Africa electricity and telephone facilities in many areas experience cuts and downtimes. Staff wishing to use modem links from remote sites to the University's network cannot rely on consistently maintained access. In addition, the purchase price of, and duty on, (imported) home computer equipment is high.

Library staff require access to online catalogues in institutions throughout the country and internationally, either through the South African Bibliographic Network, SABINET, or directly. Direct access, even between members of the regional "Gauteng And Environs Library Consortium", GAELIC, is sometimes complicated by the firewalls that institutions have set in place for IT protection.

Other databases on library web sites, that are free or have been purchased locally or by consortia, may need access passwords. At present the Library is trying to make database access as transparent as possible via the Library Web site; passwords are still required for products with limited licences.

The IT networked environment is rapidly changing. Benefits of intensive IT literacy and skills training in a wider sense at the University would undoubtedly be improved performance, better user satisfaction and more job flexibility.

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---> LIBRARY STAFF

IT background of Library staff working in an IT environment
The University Library has a staff of close on 150 persons, of whom approximately one third have professional qualifications; the legacy of former national policies of education and development in South Africa is seen in the high proportion of staff who, without formal post-school qualifications, come from the designated "previously disadvantaged" groups: black people and especially black women. The vast majority have English as a second, third or fourth language.

Library staff IT skills vary widely. Some have IT experience from home, school or specific certificated courses; others have little or no IT experience of any kind beyond the use of automatic banking (ATMs). As might be expected, those with home computers or IT literate family members, tend to be more open to learning more. Those with formal computer experience from school or college, but not at home, do have IT knowledge and with practise achieve good working levels of IT skill and literacy.

Many previously disadvantaged staff, however, especially those in their 30s, 40s or beyond, have neither computer exposure nor basic skills. Touchingly naïve comments by such staff on anonymous evaluation forms reflect enthusiasm and high expectations following even slight exposure to IT in basic Library staff training modules:

> *"I improved a lot compared to my previous experience and believe that in the next course I will be excellent;"*
>
> *"I love learning something new and interesting, especially the learning of the mouse;"*
>
> *"Because I know little about CDROM and it gave me interest in knowing more."*

At this less-skilled end of the IT literacy spectrum staff may also, in addition to the enthusiasm reflected in the comments above, be fearful of new skills needed, or may passively believe that the responsibility lies entirely with the more senior Library training staff. Levels of staff IT literacy rise all the time, through the exigencies of working in a highly networked environment, but nevertheless present constant challenges in the South African, and the Wits Library, context.

Perceptions of IT literacy among library staff:
Library staff assess their own levels of IT literacy needs in widely differing ways (as for example indicated in the comments quoted above). Initially most staff may identify particular IT skills needed to perform immediate daily work. For example a new desk staff member may ask to be shown initially how to issue books on the library system and then, as s/he is asked questions by users, may enquire about training to learn more, in order to meet users' expressed needs.

One of the challenges of the South African technological environment is a lack of awareness of the wider generic context and inter-relatedness of many routine skills. Staff unfamiliar with the wider scope of a system or resource, may not know what training to request. Staff familiar with email may request training to communicate more effectively; staff who are not, may prefer the familiar comfort of paper-based or telephonic communication until encouraged to attend training and practise new skills within the Library. Staff who have only accessed networked CDROM databases may be unaware of the full-text nature of newer electronic resources and limit their users accordingly. Staff may be afraid of making mistakes with IT, and so avoid acquiring more than absolutely essential skills. Inevitably there are also those who have picked up "bad habits" in the past and need to be "rehabilitated" to currently accepted practices in the library; and those who feel they know it all! This entire range of staff IT profiles needs to be taken into account in addressing training in the library.

IT TRAINING

University and Library Web sites provide both intranet access to internally generated information within the University, and database access, to all members of University staff and students from within the University domain. Library staff must access these sites to keep up-to-date with University news, and to

assist users in accessing the sophisticated electronic information resources made available at great cost by the Library through the GAELIC consortium. To perform successfully in this electronic environment, Library staff need individual and more structured but voluntary group training sessions.

The learning curve may be slow. As mentioned above, IT-disadvantaged staff not only struggle with specific IT skills but have to overcome fear, resistance and the insecurity of making "big mistakes" and possibly "losing face" in front of younger co-workers. Such barriers need to be addressed before progress can be achieved: until staff begin to feel comfortable in front of a computer and realise that they, not the machine, are the drivers, they tend to do without deviation only what is routinely required of them. This can lead to problems should the machine or the system present an unexpectedly different response to that which is familiar and expected.

MacLeod and Chiware (1993)1 have identified prerequisites for successful automation training as including a sufficient amount of training, extended areas of training beyond that required for the immediate job, high-level management involvement, and agreement that training be a continuing process.

Motivating staff

Staff participate in training for some or all of the following reasons:

- told to attend;
- invited to attend;
- wish or feel a need to attend;
- know co-workers have attended and benefited;
- ask for specific training;
- wish to learn for personal external reasons: e.g. promotional prospects, CV preparation, family email contact.

The relevance and anticipated transfer of training to particular work in the Library is always explicit in announcements of training sessions, so that staff can assess the advantage to themselves. Ultimately staff under pressure of work will attend IT training if they perceive, and subsequently experience, that training helps relieve pressure.

Despite such reasons, motivating staff to improve IT skills requires a complex and sensitive approach. In general, if staff do not perceive a benefit in a new skill, training may not achieve more than mediocre results in practice. The Library's Education and Training section also observe that staff with little IT experience find it hard to measure their own ability or need against the contents outline or pre-requirements of a given training module, and may not participate in training at the level most beneficial to themselves. Staff may obsessively and repeatedly attend every training session or, alternatively, participate in training for which they are under-prepared, and may lose because they may not actively use it on the job.

South Africa's past history of exclusion, however, makes it difficult to the point of being unacceptable to exclude any person from a training session which s/he wishes to attend, despite the fact that this may lead to an unproductive and difficult situation. An experimental attempt to set a simple skills exercise (the "mousercizer" tutorial) at the start of a training session, to separate levels of skills in participants, was greatly resented and abandoned.

For the same reason, motivation is highest with recognition of training. The Library is not in a position to certificate staff who attend 90-minute inhouse-designed training modules ("Basics", "Beyond Basics-1", "Beyond Basics-2"). Incentive and reward are conceptualised materially by many staff and the absence of material reward is often a disincentive. With the introduction since 1995 of a National Qualifications Framework (NQF) (www.saqa.org.za), it is however possible that even short training modules will be structured on a "unit standard" basis with a formal credit value. This will undoubtedly lead to better structured training and greater recognition.

---> IT LITERACY

Where knowledge is needed

- There may not be knowledge of what IT skills are available;
- skills may only be needed for an occasional or irregular task, once-off or once a year; (there may even be a conscious decision not to acquire such a skill but simply to ask for help each time);
- there may not be awareness of, or skill in, selecting and using the best application for a particular task
- an objective may be achieved but not in the most efficient or effective way;
- not believing that help is needed may lead to blaming the computer when things go wrong!
- preferring "I can't" as an avoidance tactic.

Training experience in the Wits University Library indicates that staff new to a system (library system, email, word processing etc) may develop rapidly in response to training at first but, once the basic routines required can be carried out, there often appears to be reluctance to train further. This may be due to boredom, work pressure or a real sense that no more knowledge or skill is needed. At this point on the learning curve extra motivation is needed to rekindle initial enthusiasm and sustain ongoing skills development.

Areas of IT literacy required in the Library

- Basic Windows and Internet generic screen and mouse skills; (although the majority of staff now possess these skills, they are sometimes at a rudimentary level without broader context);
- The Innovative Interfaces Inc., III, library system, installed three years ago;
- GroupWise email (recently converted from Pegasus);
- Internet management (Netscape, MS Internet Explorer);
- Library web site and linked electronic resources:
- eWITS OPAC
- Access to OPACs of other members of consortia;
- CDROM Databases;
- Electronic resources including full text databases and electronic journals;
- MSOffice networked applications as required;
- Highly specific individual software applications.

Gaps perceived in Library IT literacy:

- Management applications using features of the III system;
- Internet management;
- Accessing electronic resources and retrieving information from the Library Web site;
- Management of features of GroupWise email (beyond simple sending and receiving email);
- Skills and knowledge gaps revealed by staff surveys and performance appraisals, referred to E&T or LCS;

FACILITIES FOR RAISING IT LITERACY LEVELS

- External training (including subsidised participation in workshops, symposia and conferences):

  Individual members of Library staff may periodically require specialised IT training not available through the Library's Education & Training (E&T) or Computer Services (LCS) departments, nor the University's Computer Network Services (CNS). The cost of such training may be covered by the E&T budget, and may be subject to conditions that include a contract to continuing working in the Library for a given period after training, as well as a requirement to provide assistance to other members of staff who may need this.

- University CNS:

  The training unit of CNS advertises regular repeat training in general IT applications for current

University needs. The subsidised cost is borne by Library E&T. CNS also services a University-wide online help desk.

- Library E&T:

  E&T has one part time and two full time members of staff, and is responsible for coordinating and delivering user education and information literacy as well as staff training. Library-related IT training is designed and delivered to met the needs of ongoing Library IT development, requests by staff and management , or any skills perceived as necessary to staff development. E&T operates in two networked, console-linked electronic classrooms in the Library. These provide facilities for switching between on-screen demonstrations and hands-on practice sessions, for in-house and external training delivery. In 1998 and 1999 a total of over 90 training sessions were delivered in these ECRs, covering all the applications and systems described above.

- Library Computer Services (LCS):

  LCS delivers ECR-based staff training and individual assistance in specific technical areas on demand. In addition, LCS has designated "Area Filter Staff Members" (AFSMs), trained as first-level IT trouble shooters in Library departments, to identify minor IT problems and refer major issues to LCS. This practical approach is intended to reinforce Library staff IT skills. LCS also operates an email Library help desk.

- ASK-US inhouse list:

  An internal unmoderated list is administered within the Library on which problems, questions and answers are posted. "Tips" are edited and posted for ease of reference by all staff.

SPECIFIC APPROACHES TO IMPROVING IT LITERACY LEVELS

- Regular modular group training sessions in Library applications, building up skills from basic to more advanced levels of implementation; stressing importance of supervised practice on the job;
- providing training guidesheets and mini-manuals;
- constant monitoring and adjusting training to match Library needs;
- alerting department heads to the need for on the job reinforcement of training;
- encouraging interactive contributions to the ASK-US list;
- broadcasting global logon advice;
- encouraging the use of "tips" to be regularly edited on the Library intranet site;
- maintaining efficient individual assistance through the LCS Library help desk and person-to-person, including "talking through" technical problems by telephone;
- consulting outside commercial or expert help when appropriate;
- positive reinforcement of all IT skills and confidence-building through technical support.

CONCLUSION

From the wide-ranging account of the current state of IT literacy and training among the Wits University Library staff given in the preceding pages, the following points and suggested strategies emerge in summary and conclusion:

1. It cannot be assumed that a generally uniform IT-literate background culture, that will support new generations of Library IT implementation, exists for the majority of staff. Evaluating skills needs and developing training for such implementation, must include explicit recognition of this situation.

2. Introducing sophisticated IT on a wide scale in this library has required substantial and sustained training support, in groups and individually, to ensure optimum levels of application and utilization throughout the University community of users. Monitoring transferability, reinforcement on the job and building confidence, are essential.

3. Training should explicitly address known Library development needs and anticipate future needs in order to sustain confidence on the job. Training should always identify and stress the relevance of training to the work situation as well as personal skills development.

4. Motivation should include recognition of skills acquired and the Library should find ways of building in an incentive and reward system even if this cannot be a material reward.

References

1. MacLeod, R.A. and Chiware E.R.T. (1993): Lessons to be learned. Information technology training in a developing country academic library. *Library Management* 14 (6) 1993, 24-30

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